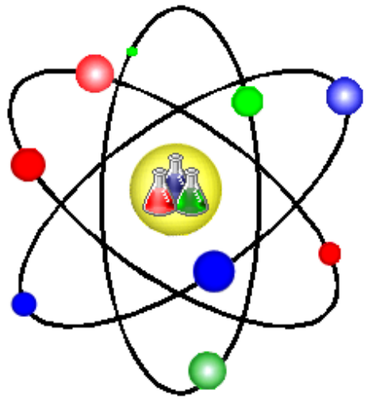
Science Medium Term Plan

Autumn Term



Science Intent Statement

At Holy Trinity, our science curriculum is designed to ignite curiosity and foster a lifelong wonder about the universe. Above all, we believe that science should be a joyful adventure, full of excitement, discovery, and fun. We believe that every child is a scientist, which is why our curriculum is fully inclusive, adaptive, and accessible to all children, regardless of their starting points or additional needs.

We deliver a highly practical, hands-on inquiry curriculum where children don't just learn science, they *do* science. By exploring the world through active investigation, children develop the critical thinking skills needed to question, experiment, and analyse.

To ensure deep, long-term retention, our curriculum is built on a spiral model. Prior learning is constantly revisited and woven into new contexts, allowing children to securely embed key concepts into their long-term memory.

We look to the future by explicitly linking classroom learning to real-world STEM careers and aspirations. By introducing diverse role models and global scientific innovations, we empower our children to see themselves as the innovators, engineers, and researchers of tomorrow.

Reception Science Autumn Term

Term	Autumn 1	Autumn 2
Theme	Senses (me & my small world) Let's go outside	Night and day What's changed
Prior knowledge	Knowledge of bodies	Knowledge of day and night
Taught Vocabulary	Smell, touch, see, hear, taste, nose, skin, eyes, ears, mouth, tongue, hands, face, head, feel, sound, sight, sense	Animal, nocturnal, owl, badger, fox, hedgehog, bat, stars, moon, sun, night, light, day, shadow, torch, daylight, asleep, awake, evening, morning, dark,
Y1 Link	Animals, including humans	Seasonal changes Animals, including humans

Year 1 Science Autumn Term

	BIOLOGY – The Human Body				BIOLOGY – Seasonal Changes		CHEMISTRY - Materials					BIOLOGY
Lesson	1	2	3	4	5	6	7	8	9	10	11	12
Key Question	What are the parts of the human body?	How do I see? How do I hear?	How do I taste? How do I touch?	How do I smell?	What changes in Autumn?	How much rain falls in Autumn? (WS)	What different materials are there?	What are things made of?	What words describe different materials?	How can different materials be sorted?	Which materials float and which sink? (WS)	What changes in Winter?
Children Should	Identify, name and label parts of the human body	Know how we see and hear.	Know how we taste and touch.	Know how we smell.	Know changes between summer and autumn	Collect data to show changes in weather.	Identify and name a range of common materials.	Identify what materials common items are made from.	Describe the properties of a range of materials	Sort materials based on their properties	Investigate and know materials that float and sink.	Know changes between autumn and winter.
Prior knowledge	Basic body parts	Knowledge of eyes and ears	Knowledge of mouth and fingers	Knowledge of nose	Seasons of the year	Days of the week. Numbers to 10.	That objects are made from different materials	Materials from previous lesson	Common descriptive words	Putting things into groups	That some things float and some sink	Seasons of the year. Changes in Autumn
Taught Vocabulary	Head, hair, face, ear, elbow, hand, leg, mouth, nose, teeth, neck, arm, face	Eyes, sight, blind, light, dark. Ear, hear, loud, quiet, noisy	Sweet, salty, sour, bitter, savoury. Skin, rough, smooth, hard, soft	Nose, smell, scent, sniff, stench	Autumn, daylight, season	Rainfall, weather, rain gauge	Material, plastic, rock, metal, glass, fabric	Material, soft, hard, shiny, dull, plastic, rock, metal, glass, fabric, paper	Soft, hard, shiny, dull, rough, smooth, sticky	Sort, group, Soft, hard, shiny, dull, rough, smooth, sticky	Float, sink, buoyant, buoyancy	Winter, daylight, season, deciduous, evergreen
Outdoor/contextualised Learning					Observations in the environment	Activity takes place outside						Observations in the environment
NC	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.				Observe changes across the four seasons. Gathering and recording data to help in answering questions.		Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Distinguish between an object and the material from which it is made. Compare and group together a variety of everyday materials on the basis of their simple physical properties. Using their observations and ideas to suggest answers to questions.					Observe changes across the four seasons.

Year 2 Science Autumn Term

	BIOLOGY – Animal Needs for Survival AND Humans						CHEMISTRY - Materials					SUSTAINABILITY
Lesson	1	2	3	4	5	6	7	8	9	10	11	12
Key Question	What does a mammal need to survive? What does a bird need to survive?	What does a fish need to survive? What does an amphibian need to survive?	What does a reptile need to survive? AND RECAP	What does a human need to survive?	What does a human need to be healthy?	How can I group living things? (WS)	What is made out of wood, paper and cardboard?	What is made out of brick and rock?	What is made out of glass and plastic?	What is made out of metal and fabrics?	Do materials change shape? (WS)	How is plastic harmful and how can we reduce it in school?
Children Should	Know what mammals and birds need to survive.	Know what fish and amphibians need to survive.	Know what reptiles need to survive.	Know what humans need to survive.	Know what humans need to be healthy	Group living things according to characteristics	Know common items that are made from wood, paper, cardboard	Know common items that are made from brick and rock.	Know common items that are made from glass and plastic.	Know common items that are made from metal and fabric.	Know that some materials can change shape and how this is done.	Know how plastic is damaging and suggest ways of reducing plastic.
Prior knowledge	Y1 Mammals have fur or hair; mammals can be pets; mammals live in the wild. Y1 Birds have feathers, wings and a beak	Y1 Fish live in water, have fins to swim and scales on their bodies, fish breathe with gills. Y1 Amphibians live on land and water; adults live mostly on land	Y1 Reptiles have dry scales, cold blooded, lay eggs, live on land and water	Y1 The 5 senses	PE Exercise PSHE Diet	Y1 Group/sort materials	Y1 What common things are made of.	Y1 What common things are made of.	Y1 What common things are made of.	Y1 What common things are made of.	Children will have been exposed to play-dough and similar in EYFS.	Children will know that littering is bad for the environment.
Taught Vocabulary	Mammal, fur, carnivore, herbivore, omnivore, beak, wing feather	Scale, gill, fin, webbed feet, toad, frog, newt	Scale, carnivore, herbivore, omnivore	Shelter, food, water, oxygen	Hygiene, plaque, filling	Group, sort, features, classify	Material, smooth, rough, flexible, rigid	Rock, stone, pebble, brick	Brittle, flexible, transparent, translucent, opaque	Flexible, rigid, shiny, dull, fabric, lightweight	Bend, squash, twist,	Plastic, synthetic, recycle, single-use
Outdoor Learning								Explore materials outside e.g. bricks for buildings				Litter pick in the community
NC	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Working scientifically – Identifying and classifying.						Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. WS - Performing simple tests.					Using their observations and ideas to suggest answers to questions

Year 3 Science Autumn Term

	BIOLOGY – Skeletons,			Movement	BIOLOGY - Nutrition and Diet			SUSTAINABILLITY	CHEMISTRY - Rocks			
Lesson	1	2	3	4	5	6	7	8	9	10	11	12
Key Question	How does our skeleton help us survive?	Are all skeletons the same?	How can animals be sorted based on their skeletons?	How do our joints allow us to move?	What are the 5 food groups?	What should humans eat?	What do animals eat?	How can we reduce food waste?	What types of rocks are there?	How can rocks be grouped?	What are the properties of different rocks?	Consolidation/Assessment
Children Should	Identify the functions of the skeleton. Identify and name bones in the human body.	Identify and compare key bones across different animals.	Explore animals with and without spines	Know that animals have joints. To understand how joints allow us to move. (WS)	Know that there are 5 food groups and what is in each.	Know that humans should eat the correct amount of each food group.	Know that animals eat different types of foods	Know ways in which we can reduce food waste.	Identify different types of rock.	Group rocks based on properties.	Investigate the properties of different rocks.	
Prior knowledge	Y2 Animals and humans; basic needs of animals	Y2 Animals and humans; basic needs of animals	Y2 Animals and humans; basic needs of animals	Y2 Animals and humans; basic needs of animals	Y2 basic need s of survival.	Y2 basic need s of survival.	Y2 basic need s of survival.	Y2 Reduce plastic pollution	Y2 Materials	Y2 grouped materials	Y2 testing the properties of materials	
Taught Vocabulary	Skeleton, skull, spine, ribcage, pelvis, femur?	Mammal, bird, fish, amphibian, reptile	Spine, antennae, insect, exoskeleton, vertebrate, invertebrate	Joint, muscle, bicep, tricep, contract, relax	Carbohydrates, protein, dairy, fat, sugars, diet	Carbohydrates, protein, dairy, fat, sugars, diet	Carnivore, herbivore, omnivore	Food waste, landfill, recycling, edible, inedible	Granite, pumice, sandstone, chalk, marble, gneiss	layers, crystals, weight	Porous, strength, sink/float, brittle	
Outdoor Learning							Bland Close Farm	Visit to school canteen or cooks visit classroom.		Outside with large hoops.		
NC	Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Working scientifically – Asking relevant questions				Identify that animals including humans need the right types and amount of nutrition and that they get it from what they eat. WS – Grouping and sorting			WS – Reporting on findings from enquiries.	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.			

Year 4 Science Autumn Term

	BIOLOGY – Group and Classify Living Things			Data Collection	CHEMISTRY – States of Matter							
Lesson	1	2	3	4	5	6	7	8	9	10	11	12
Key Question	What are animals grouped? (mammal, fish etc)	What are vertebrate and invertebrates?	How can I classify animals?	What living things do we have in our local area and how does this change over the year?	What are solids, liquids and gases?	Which materials might be more difficult to categorise?	Can materials change state?	How does temperature affect the speed that ice melts?	How does the temperature affect the speed that water evaporates?	What is condensation?	What is the water cycle?	Consolidation/Assessment
Children Should	Revise animal groups from previous years.	Know that vertebrates have a spine and invertebrates do not.	Classify animals according to their features using a classification key.	Observe wildlife and present findings.	Understand the difference between solids, liquids and gases.	Know that some materials are more difficult to categorise.	Know that some materials can change state.	Know that the higher the temperature, the quicker the ice melts.	Know that the higher the temperature, the quicker water evaporates?	Know that condensation is a gas turning back into a liquid.	Understand how evaporation and condensation play a role in the water cycle.	
Prior knowledge	Recap – mammal, bird, fish, amphibian, reptile, vertebrate	Recap – mammal, bird, fish, amphibian, reptile, vertebrate	Recap – mammal, bird, fish, amphibian, reptile, vertebrate	Base the activity on a relevant statistics lesson in maths.	Y1 Materials Y2 Rocks	Y1 Materials Y2 Rocks	Y1 Materials Y2 Rocks	Children will have seen snow melt.	Children will have seen puddles evaporate in the playground.	Children will have seen it rain and seen steam on windows.	Children will have seen it rain and seen steam on windows.	
Taught Vocabulary		Vertebrate, invertebrate, exoskeleton, soft bodied invertebrate, insect	Key, classify, vertebrate, invertebrate, exoskeleton, soft bodied invertebrate, insect	Bar chart, pictogram, table, pie chart.	Solid, liquid, gas, particles, state	Pouring solid, thick liquid, state	State, temperature, melt, solidify, freeze, evaporate.	Melt, temperature, state, particles, solid, liquid.	Evaporate, temperature, state, particles, solid, liquid, gas.	Condense, condensation, gas, liquid, state	Evaporation, condensation, state, particles, temperature.	
Outdoor Learning	Explore outdoor area to identify different animal groups.			Explore outdoor area and count living things according to carefully selected list.							Go outside to observe the clouds and puddles.	
NC	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Working scientifically – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.				Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Working scientifically – Talk about criteria for grouping, sorting and classifying (non-statutory). Working scientifically – Identifying differences, similarities or changes related to simple scientific ideas. Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. Working scientifically – Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Working scientifically – Setting up simple practical enquiries, comparative and fair tests.						

Year 5 Science Autumn Term

	PHYSICS - Forces					PHYSICS - Space					SUSTAINABILITY - Global Warming	
Lesson	1	2	3	4	5	6	7	8	9	10	11	12
Key Question	What is friction and where is it useful?	What is air resistance and water resistance?	What makes a parachute fall slower/faster? (WS)	What is gravity?	How are gears and pulleys useful?	How is the solar-system organised?	What causes day and night?	Why is the moon not a planet?	How have ideas about the solar system changed over time?	Who can be an astronaut? (EDIJ)	How is global warming affecting wildlife?	Consolidation/Assessment
Children Should	Recap on friction from year 3 and look at examples of where it is useful.	Understand what air resistance and water resistance is.	Understand the variables that create a slower/faster parachute	Understand that gravity is a non-contact force that pulls things towards the Earth.	Understand that levers and pulleys allow a smaller force to have a greater effect.	Know that the Earth, Sun and Moon are spherical. Planets orbit the sun. The moon orbits the Earth.	Know that Earth's rotation causes day and night and makes the sun appear to move across the sky.	Describe the movement of the moon relative to the Earth.	Understand that people used to support the geocentric model, but evidence has proved the heliocentric model.	Understand that recently people from all demographics have contributed to space travel.	Understand that the Earth is warming up and that this is due to human influence.	
Prior knowledge	Y3 Friction	Y3 Friction	Y3 Friction	Y3 Friction	Y3 Friction	Y5 Gravity Y3 light	Y5 Gravity Y3 light	Y5 Gravity Y3 light	Y5 Gravity, Y3 light	Y5 Gravity, Y3 light	Y4 Deforestation	
Taught Vocabulary	Force, contact force, friction, motion	Air resistance, force, friction, drag, upthrust	Air resistance, force, friction, drag	Gravity, gravitational force, weight, mass, contact force, non-contact force	Lever, gear, pulley, machine, mechanism	Sphere, orbit, solar	Rotate, light source, sunrise, sunset	Orbit, heliocentric, moon	Copernicus Galileo, Heliocentric, geocentric	Artemis crew Hidden figures, Ethnicity, demographic, astronauts, astronomer	Global warming, habitat, glaciers, carbon footprint, climate change, Greta Thunberg	
Outdoor Learning		Demonstration take place outside.	Parachute experiment to take place outside.	Demonstration take place outside.	Create seesaw with plank of wood to demo levers	Children act out the movement of the planets outside.						
NC	Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Explain that unsupported objects fall towards the Earth because of gravity acting between the Earth and the falling object. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Working scientifically – Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Working scientifically – Taking measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Working scientifically – Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results.					Describe the Sun, Earth and Moon as approximately spherical bodies. Describe the movement of the Earth and other planets relative to the Sun in the Solar System. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. Describe the movement of the Moon relative to the Earth. Working scientifically – Identifying scientific evidence that has been used to support or refute ideas or arguments.					Working scientifically – Identifying scientific evidence that has been used to support or refute ideas or arguments.	

Year 6 Science Autumn Term

	BIOLOGY – Living things and their habitats						PHYSICS - Electricity					Sustainability – Renewable energy
Lesson	1	2	3	4	5	6	7	8	9	10	11	12
Key Question	What are the conditions for life?	How can we group living organisms?	Can I classify animals and plants?	What is a micro-organism?	Can I classify micro-organisms?	Who was Carl Linnaeus?	What is a circuit and a circuit diagram?	What is a complete and incomplete circuit?	Can I vary what is in a circuit?	How can I change the brightness of a bulb?	How can I change the brightness of a bulb?	What is renewable energy?
Children Should	Know the conditions for life.	Group organisms according to features	Use a key to classify animals and plants.	Understand what a micro-organism is.	Classify micro-organisms based on features.	Understand that Carl Linnaeus developed a classification method.	Construct a circuit and draw the corresponding symbols.	Know that switches create complete/incomplete circuits to turn things off and on.	Know that circuits can be made up of a variety of components.	Plan an investigation into the effect of increased voltage.	Know that the more cells/voltage, the brighter the bulb.	Understand what renewable energy is and how it can be used.
Prior knowledge	All previous years - Living things and habitats	All previous years - Living things and habitats	All previous years - Living things and habitats	All previous years - Living things and habitats	All previous years - Living things and habitats	All previous years - Living things and habitats	Y4 Electricity Simple circuits, appliances	Y4 Electricity Simple circuits, appliances	Y4 Electricity Simple circuits, appliances, switches	Y4 Electricity Simple circuits, appliances, switches	Y4 Electricity Simple circuits, appliances, switches	Y5 Global Warming
Taught Vocabulary	Organism, excretion, reproduction living/non-living, organ, light, food, water	Vertebrate, invertebrate, flowering plant, non-flowering plant, mammal, fish etc	Classification key, mollusc, arachnid, vertebrate, invertebrate	Bacteria, virus, fungi, micro-organism	Bacteria, virus, fungi, micro-organism, microscope	Classification key	Series circuit, cell, battery, bulb, current, voltage	Complete circuit, incomplete circuit, switch, buzzer	Series circuit, cell, bulb, current, voltage, buzzer	Independent variable, dependent variable, controlled variable, voltage, current	Independent variable, dependent variable, controlled variable, voltage, current	Solar power, wind power, renewable, non-renewable, wind turbine, global warming, greenhouse gases
Outdoor Learning			Select plants from outside and classify			Select bugs from outside and classify						
NC	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Working scientifically – Identifying scientific evidence that has been used to support or refute ideas or arguments. Give reasons for classifying plants and animals based on specific characteristics.						Use recognised symbols when representing a simple circuit in a diagram. Working scientifically – Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Compare and give reasons for variations in how components function, including the brightness of bulbs, and the on/off position of switches. Associate the brightness of a lamp with the number and voltage of cells used in the circuit.					